

Title (en)
IMPROVED METAL CUTTING TOOL ASSEMBLY HAVING AN AUTOMATICALLY ADJUSTABLE CHIPBREAKER

Title (de)
VERBESSERTES SCHNEIDWERKZEUG FÜR METALL MIT AUTOMATISCH VERSTELLBAREM SPANBRECHER

Title (fr)
ENSEMBLE OUTIL DE COUPE AMELIORE MUNI D'UN BRISE-COPEAUX A AJUSTAGE AUTOMATIQUE

Publication
EP 0724495 B1 19991222 (EN)

Application
EP 94930488 A 19940927

Priority
• US 9410921 W 19940927
• US 14131093 A 19931022

Abstract (en)
[origin: US5704734A] A metal cutting tool assembly (1) having an automatically adjustable chipbreaker (23) is provided that comprises a cutting insert (11) for cutting a relatively rotating workpiece, a holder (3) for holding the insert (11), an insert driver (5) for applying a cutting force between the insert (11) and the workpiece, a chipbreaker (23) having a surface (27) that is effective in breaking chips (55, 56) of different thicknesses when positioned at different distances from the cutting edge (19) of the insert (11), and a mounting mechanism (30) for movably mounting the chipbreaker (23) onto the holder (3). The mounting mechanism (30) includes a spring (50) for automatically adjusting the distance between the chipbreaking surface (27) of the chipbreaker (23) and the cutting edge (19) of the insert (11) in response to the forces applied to the chipbreaker (23) by the metal chips (55, 56) that result from the cutting operation. The mounting mechanism (30) may allow the chipbreaker (23) to either slidably reciprocate on the holder (3) toward and away from the cutting edge (19), or to pivotally move with respect to the cutting edge (19). In both cases, the deflection of the spring (50) is proportional to the thickness of the metal chips (55, 56) engaging the chipbreaking surface (27), which in turn automatically provides the appropriate chipbreaking geometry. The inventive tool assembly allows the same chipbreaker (23) to effectively break chips (55, 56) of widely varying thicknesses which are created when the cutting insert (11) is used to make a variety of different types of cuts in a machining operation.

IPC 1-7
B23B 27/22; **B23B 27/16**

IPC 8 full level
B23B 27/16 (2006.01); **B23B 27/22** (2006.01)

CPC (source: EP US)
B23B 27/1633 (2013.01 - EP US); **B23B 27/22** (2013.01 - EP US); **Y10T 407/112** (2015.01 - EP US); **Y10T 407/118** (2015.01 - EP US); **Y10T 407/2268** (2015.01 - EP US)

Designated contracting state (EPC)
AT BE CH DE ES FR GB IT LI NL SE

DOCDB simple family (publication)
US 5704734 A 19980106; AT E187910 T1 20000115; AU 675886 B2 19970220; AU 7959294 A 19950508; CA 2172821 A1 19950427; CA 2172821 C 19990608; CN 1044098 C 19990714; CN 1133573 A 19961016; DE 69422301 D1 20000127; DE 69422301 T2 20000608; DE 724495 T1 19970213; EP 0724495 A1 19960807; EP 0724495 B1 19991222; ES 2141263 T3 20000316; JP 2843151 B2 19990106; JP H09501875 A 19970225; KR 100193086 B1 19990615; RU 2107589 C1 19980327; US 5538367 A 19960723; WO 9511102 A1 19950427

DOCDB simple family (application)
US 66903596 A 19960624; AT 94930488 T 19940927; AU 7959294 A 19940927; CA 2172821 A 19940927; CN 94193868 A 19940927; DE 69422301 T 19940927; DE 94930488 T 19940927; EP 94930488 A 19940927; ES 94930488 T 19940927; JP 51184095 A 19940927; KR 19960701976 A 19960417; RU 96109474 A 19940927; US 14131093 A 19931022; US 9410921 W 19940927